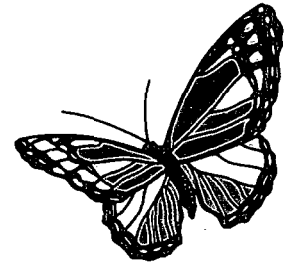


**CITIZENS FOR LOWRY LANDFILL ENVIRONMENTAL ACTION NOW**

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May 15, 2007

Ms. Bonita Lavelle, RPM  
U.S. Environmental Protection Agency, Region 8  
Office of Ecosystems Protection and Remediation  
1595 Wynkoop Street  
Denver, Colorado 80202-1129

**RE: Comments Regarding the North End Groundwater Monitoring Plan, April 16, 2007.**

Dear Ms. Lavelle:

CLLEAN appreciated the opportunity to review these plans. Please enter our comments into the Site Record. These comments are provided with the intent to improve operations at the Lowry Landfill Superfund Site. Although CLLEAN is not providing approval of the completeness or conclusions of the proposed project, we feel it is important to participate in the process by providing constructive comments.

CLLEAN would like to provide five comments on the proposed monitoring program:

**1. Additional Assessment of Suspected Lineament Locations**

There remains significant uncertainty regarding the source of 1,4-dioxane in this area. During the May 8, 2007 U.S. EPA presentation for the Arapahoe County Commissioners, multiple potential sources were discussed as feasible alternatives. This contradicts previous U.S. EPA replies to CDPHE concerns regarding this issue in the Second Five-Year Review Report. CLLEAN welcomes this change in position and will continue to work with U.S. EPA, the Responsible Parties and other stakeholders and regulatory agencies to expand the local groundwater and geology assessment to address this issue.

To meet this evolving policy, we suggest that a more detailed discussion for the work plan be prepared. This discussion should address the following as part of a more comprehensive approach to the current North End Monitoring Plan:

- Develop alternative conceptual models of pathways for 1,4-dioxane groundwater migration to downgradient of the North Boundary Barrier Wall (NBBW). These may include groundwater flow around and under the NBBW through preferential

- hydrogeologic pathways. Provide evidence based on monitoring data for the likelihood of occurrence for each conceptual model.
- Numerically model the placement and persistence of 1,4-dioxane downgradient of the NBBW given the observed groundwater conditions. The model should be used to evaluate the feasibility of the proposed source of 1,4-dioxane by simulating the groundwater placement via the injection trench based on realistic disposal concentrations and times. Do the observed groundwater concentrations match the simulated concentrations when 1,4-dioxane is disposed in the injection trench? If the model cannot reproduce the observed groundwater conditions, then the placement of 1,4-dioxane downgradient of the NBBW through solely disposal practices is suspect.
- Use the numeric model to estimate the mass of 1,4-dioxane based on disposal concentrations and periods. Compare this injected mass with the mass accounted for by the existing monitor wells. If there is a large discrepancy in the mass balance, then the monitoring program is insufficient to track the contaminant migration.
- Numerically model the eventual removal of this contaminant by groundwater flow. Questions the model should be able to answer are: how long is it estimated that concentrations will remain above 6.1 µg/L, how far down gradient will these constituents migrate, and does the contaminant enter surface water and/or go into a deeper aquifer.

As indicated in the comments above, additional monitoring is required for the potential source areas. These are most likely associated with lineaments and/or other areas allowing preferential groundwater flow under and/or around the North Boundary Barrier Wall (NBBW). The Colorado Department of Public Health and the Environment (CDPHE) has recently presented information regarding lineaments in the NBBW area. A figure used in a recent CDPHE presentation and also used in a 2005 Parsons engineering report is attached that illustrates a number of suspected lineaments moving through the NBBW area. To better understand these features and potentially predict their impact on the plume extending off-site, it is recommended to install wells along these lineament structures on both sides of the NBBW. These wells should include installation in both the weathered and unweathered Dawson formation. Adding these wells to the monitoring program can improve the understanding of the 1,4-dioxane source, associated water chemistry and changes in the study area.

This request will also serve to initiate meeting the requests CLLEAN has developed as part of the Second 5-Year Review Report from April of 2007. In addition, most of this information and analysis may have already been developed internally by the Responsible Parties and only require a more formal and complete presentation for use with this work plan.

## 2. Unweathered Dawson Wells North of Yale Avenue

No wells below the weathered Dawson and outside of the point of compliance are included in this monitoring program. Only one deeper well, B-201 UD, has been monitored in the area. Although B-201 UD did not include a detectable amount of 1,4-dioxane for the sampling events discussed in previous reports, it is insufficient to use only one well for such a large area.

In general, due to the high economic value of the deeper groundwater and the location of domestic wells less than 2,000 feet from the possible northern end of the plume, we recommend monitoring wells to be included in the monitoring program in the Unweathered Dawson in the area of MW141, MW 136 and MW 142.

## 3. Additional Analytical Parameters

Due to its high solubility and subsequent mobility, 1,4-dioxane and nitrate are some of the more mobile constituents of the site. Due to its persistence, 1,4-dioxane concentrations can remain unchanged while nitrate can often be subjected to bioattenuation. Although other constituents may follow this plume with time in the absence of remediation or additional containment, it is not unreasonable to manage the plume for 1,4-dioxane in the short term. However, observing changes in other parameters, including several inexpensive general water quality parameters, may be useful in characterizing changes and add confidence to assumptions regarding potential treatment effectiveness. Additional discussions regarding the appropriate parameters are recommended, but chloride, total dissolved solids, sulfate, pH and dissolved oxygen should be included.

## 4. Other Additional Weathered Dawson Wells along the Plume Boundary

CLLEAN concurs with the recommendations from CDPHE provided on April 25, 2007, regarding additional wells to be monitored and other changes in the monitoring program.

## 5. Additional Surface Water Monitoring

At this time, CLLEAN would like to again request that a reasonable surface water sampling program should be initiated to follow up on the March 2006 surface water samples. To restate our concerns, previous efforts have indicated 1,4-dioxane in concentrations exceeding the groundwater performance standard (6.1 µg/L) in surface water down gradient from the proposed well locations. These sampling points, SWMC-04 and SWMC-03 with 6.2 and 10 µg/L 1,4-dioxane respectively and are in accessible areas; SWMC-03 and SWMC-04 are both approximately 2,000 feet from Murphy Creek Elementary School. This is particularly important since elevated concentrations are found in surface water but concentrations varied (with a high detection limit) among

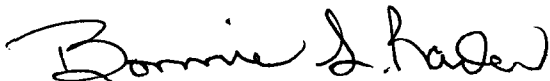
samples in the creek. Adding to these concerns is the information provided by area homeowners that site waste flowed in Murphy Creek prior to site remediation/containment. Potentially contaminated sediments can create highly variable water quality depending on flow and other factors.

To meet these concerns, it is recommended to conduct a similar panel on regular surface water samples (when available) that coincide with groundwater sampling. In addition, it is recommended to conduct stormwater sampling to provide information on the full range of water types available in the creek. This data could provide substance to the theory forwarded by the Responsible Parties and U.S. EPA that water in the creek is chemically identical to groundwater and that levels are maintained near or below 6.1 µg/L, the State of Colorado basic standards for state groundwater and surface water (Regulation 31).

These comments are brief; it is our understanding that additional discussions are planned as the system is developed. We would be happy to continue to add to this important discussion as well as clarify our comments as we review your response.

If you have any questions, please feel free to contact me at 303-912-2905, or our Technical Advisor, Dietrick McGinnis at 775-853-0449.

Sincerely,

A handwritten signature in cursive script, reading "Bonnie L. Rader".

Bonnie L. Rader, Director




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